TENNESSEE DEPARTMENT OF EDUCATION
DIVISION OF CAREER AND TECHNICAL EDUCATION

Advanced Manufacturing
Standards Revision (Phase II): Frequently Asked Questions

Question	Answer
Will the standards dictate how a teacher is to teach a specific standard?	The standards are written to provide teachers with better direction as to the content and expectations of what the student should know and be able to do. This will allow the teacher to use the best method of instruction to enhance the student's learning experience.
Will a student need to complete all four levels of the program of study to meet the elective focus required for graduation?	No. Students will only need to complete three courses within a program of study or career cluster to complete their elective focuses and become CTE concentrators. Specific elective focus areas are selected by local boards of education. We do, however, encourage students to complete all four courses in a program of study to ensure they are best prepared for postsecondary and career opportunities.
How will these standards help prepare my students to function in society and in the workforce?	Data gathered from business and industry illustrate that the skills and knowledge required for success in the workforce are identical to those required for success in postsecondary. Industry trends show the majority of current and future occupations will require some form of postsecondary training. It is our responsibility to prepare all students with the skills they need to be successful. These standards also ensure that students develop skills to be productive members of society by becoming more informed individuals.
There are a lot of references to general education standards in the new standards. Are we expected to teach general education content in addition to our CTE content?	These standards reflect general education standards where they have direct application to CTE content. Teachers are not expected to teach general education standards; rather, they should be able to show the application of these concepts in a contextual way through the instruction of their CTE content.

What if I am concerned that my students are not able to do this level of work yet?	Standards are structured to develop conceptual understandings of both technical and literacy skills in a logical progression. All students can meet postsecondary and career readiness expectations embedded in these standards with the correct supports.
Is there room in a student's schedule to complete a four-course program of study?	Most LEAs' master schedules provide opportunities for students to receive elective credits in addition to the minimum credits required for graduation by State Board of Education policy. Most programs of study include at least one course required for graduation as part of the logical sequence, allowing a student to fulfill graduation requirements while progressing through a program of study. We strongly encourage students, parents, and administrators to select a student's elective focus during his/her freshman year.
I noticed that the revised Principles of Manufacturing is now organized into core content and focus areas. What is a focus area?	The Principles of Manufacturing course has been redesigned to introduce students to multiple areas of the advanced manufacturing industry, so that they can make an informed decision when selecting a program of study to pursue. In addition to core content, each program of study (e.g., Mechatronics, Electromechanical Technology, Machining Technology, and Welding) is represented as a focus area within the course standards. All students are required to complete the core content standards, as well as standards in at least two focus areas.
Since Principles of Manufacturing now includes additional content such as mechatronics, electromechanical technology, machining technology, and welding, will I still be able to teach this course if I do not hold endorsements in all of these areas?	All teachers who have taught Principles of Manufacturing in the current or previous school year will still be allowed to teach the course in 2015-16. Principles of Manufacturing has been redesigned to include content in all of these manufacturing-related disciplines, and is now the first-level course for all programs of study in the Advanced Manufacturing cluster. However, these changes do not affect existing endorsements. Further, additional endorsements have been added as well. This means that teachers endorsed to teach mechatronics, electromechanical technology, machining technology, and welding will also be able to teach the Principles of Manufacturing course beginning immediately in 2015-16.

Why is the Welding program of study now listed under Advanced Manufacturing?	The CTE Division decided to move the Welding program of study to the Advanced Manufacturing cluster because data gathered from business and industry indicates that 64% of welders and related occupations work within manufacturing, while the remainder largely spread among the construction, trade, and transportation industries *(Bureau of Labor Statistics, Occupational Employment Statistics, 2014)*. Welding will continue to be an elective in the Architecture and Construction cluster, and will also be available for elective credit in the Transportation, Distribution, & Logistics cluster for schools with the capacity to provide welding instruction within an automotive repair environment.
There used to be three welding courses. Now, I only see two. How will students have adequate time to practice technical skills?	The contents of the Introduction to Welding, Basic Principles of Welding, and Advanced Welding Applications (2 credits) courses were synthesized into two courses, Welding I and Welding II, with introductory material folded into the revamped Principles of Manufacturing. This allows the Welding program of study to adopt the Principles of Manufacturing course at level 1 and the Manufacturing Practicum course at level 4, which is consistent with all other programs in the Advanced Manufacturing cluster. Meanwhile, Welding II is still a 2 credit course. In addition, students will have the opportunity to continue honing their skills in the Manufacturing Practicum course. The purpose of the Practicum course is for students to apply what has been learned in the previous courses. As a result, students still have three years of welding practice in addition to the welding fundamentals learned in the Principles of Manufacturing course.
I cannot find the Manufacturing Applications course in the fourth level of the Machining Technology program of study. Has it been retired?	The Manufacturing Applications course was replaced by a Manufacturing Practicum course that now occupies the fourth level of each program of study in the Advanced Manufacturing cluster. The purpose of the Practicum course is for students to apply the skills learned in the previous courses to advanced projects conducted within an industry context. The content from Manufacturing Applications is primarily folded into this course, while the remainder of the content has been pushed into lower-level courses where appropriate. Just like Principles of Manufacturing, teachers endorsed to teach mechatronics, electromechanical technology, machining technology, and welding will be able to teach the Manufacturing Practicum course beginning immediately in 2015-16.

I used to teach three electromechanical courses. Now, I only see two courses. What happened to Electromechanical I and Electromechanical II courses?	Following the revision of the Introduction to Electromechanical course last year, the contents of Electromechanical I and Electromechanical II courses have been synthesized into one level 3 course - Advanced Electromechanical Technology. As a result, Advanced Electromechanical Technology is now recommended as a 2 credit course. Combining the two courses into one allows the Electromechanical Technology program of study to adopt the Principles of Manufacturing course at level 1 and the Manufacturing Practicum course at level 4, which is consistent with all other programs in the Advanced Manufacturing cluster.